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Spaceport News

America's gateway to the universe. Leading the world in preparing and launching missions to Earth and beyond.

John F. Kennedy Space Center

Fortieth Anniversary
Pioneering the Future

Since its inception Oct. 1, 1958, the National Aeronautics and Space Administration has accomplished many great scientific and technological feats, filling volumes of books in libraries and schools worldwide.

The agency has won the prestigious Collier Trophy for great achievements in aeronautics and space 14 times, and NASA technology has been adapted for many uses by the private sector in areas unrelated to aerospace.

As we celebrate NASA's 40th anniversary this October, the agency remains a leading force in scientific research and in stimulating public interest in aerospace exploration as well as in science and technology in general.

In honor of the anniversary, *Spaceport News* will include information pertinent to NASA history in the issues leading up to the October celebration.

From Projects Mercury, Gemini and Apollo in the 1960s through Skylab and deep space exploration in the 1970s, the Space Shuttle in the 1980s and commencing to build the International Space Station in the 1990s, the history of NASA documents the talents, skills and accomplishments of innumerable people who dare to dream and are dedicated to continue our nation's leadership on the frontier of space.

No time for a station break at KSC: *ISS work continues full speed ahead*

Space stations have long been the stuff of imagination. The idea of humans living and working in space has enthralled scientists and visionaries for more than a century.

Plans for development of a space station have, in fact, been a part of NASA's agenda since the agency's inception.

Many of NASA's trailblazers saw a station as a necessary prerequisite to further human exploration of space. With an orbiting space station in place, missions to the Moon and Mars could be planned without having to deal with the difficulties of designing a vehicle that could both withstand the stress of escaping the Earth's atmosphere and address the issues inherent in long-term microgravity spaceflight.

Today, NASA and its partners stand on the brink of finally making the dream of an international station a reality.

The coalition of international participants currently includes 16 countries in all: Belgium, Brazil, Canada, Denmark, France, Germany, Italy, Japan, the Netherlands, Norway, Russia, Spain, Sweden, Switzerland, the United Kingdom and the United States.

In January, all of the space station partners except Brazil signed new intergovernmental agreements establishing the framework for the assembly of the International Space Station (ISS) over the next five years.

In meetings of the Space Station Control Board and the Heads-of- Agency in late May at KSC, all station partners agreed to target launch dates of Nov. 20, 1998 for the Russian-made Control Module (FGB) now named Zarya (Russian word for "sunrise") from Baikonur in Kazakhstan and Dec. 3, 1998 for Shuttle mission STS-88 with Unity (Node I) from KSC.

Unity will launch aboard the Space Shuttle Endeavour, commencing the construction efforts of the largest peacetime engineering project in history.

The excitement about this event is growing — as is the volume of work in KSC's Space Station Processing Facility, or SSPF.

Phase II of the ISS program ends about one year from launch of the first element, and of the 10 flights that com-prise the second phase, seven will be launched from KSC.

Artist's concept of the stages of ISS on-orbit

Space station hardware for most of those flights is now at

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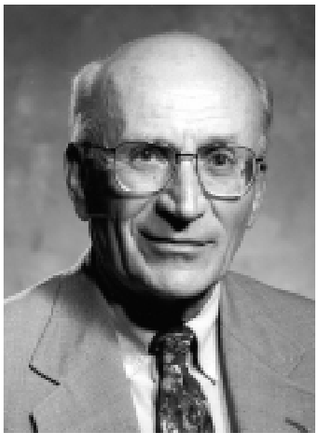
Ed Gormel named head of Joint Base Operations Office

KSC Director Roy Bridges announced the selection of Ed Gormel as the executive director of the newly formed Joint Performance Management Office (JPMO).



Ed Gormel

In this position, he will manage the Joint Base Operations and Support Contract (J-BOSC) to be awarded later this year.

Bridges also made several other executive personnel assignments to reflect new KSC roles.

"By combining resources and jointly managing base operations activities for NASA at Kennedy Space Center and the United States Air Force, 45th Space Wing, we will reduce costs and improve services for all customers," said Bridges. "The J-BOSC is a bold initiative which will greatly improve the competitiveness of our eastern national spaceport."

As the base operations manager for both KSC and the 45th Space Wing at Cape Canaveral Air Station

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Space Shuttle Main Engine Processing Facility opens

KSC's brand new 34,600 square foot Space Shuttle Main Engine Processing Facility (SSMEPF) is now officially open for business.

A major addition to the existing Orbiter Processing Facility Bay 3, the new facility replaces the Shuttle Main Engine Shop located in the Vehicle Assembly Building (VAB).

"When we do get [some] money to spend on a major facility, we know how to do it right," said KSC Director Roy Bridges. "With additions to our infrastructure like this one, I think it's clear that the Shuttle program is here for the long haul."

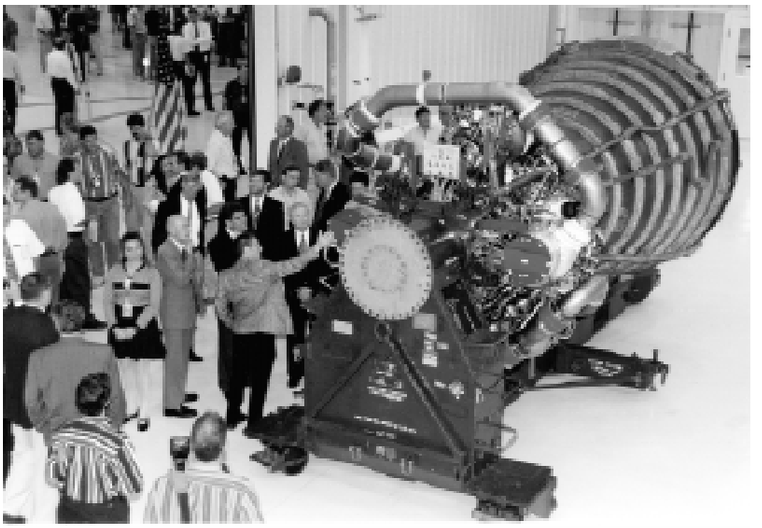
Following Bridges' remarks at the opening day ceremony were comments by U.S. Congressman Dave Weldon, KSC's Director of Shuttle Processing Bob Sieck, NASA's Launch Integration Manager Donald McMonagle and Rocketdyne Vice President John Plowden.

NASA selected Ivey's Construction, Inc., of Merritt Island, to build the $6.2 million facility designed to increase the capacity and efficiency of Shuttle main engine operations. The decision to move these operations out of the VAB was prompted by safety considerations and recent engine processing improvements.

Managers sought to minimize the number of workers and activities in the VAB where final assembly of the Shuttle's solid rocket boosters and external tank occurs. Construction of the SSMEPF began in October 1996 and was completed this past February.

Efforts are currently underway to transfer the main engine pedestals, pneumatic panels, hydraulic test equipment and the engines themselves from the VAB to the SSMEPF. A 10-ton and a 15-ton crane already have been installed in the new facility.

Each of the Shuttle's three main engines generates approximately 375,000 pounds of thrust during liftoff, providing about 20 percent of the power needed to launch the spaceship into orbit. They are the only reusable liquid-fueled rocket engines in existence and undergo prelaunch preparations here at KSC before installation into the orbiter in the OPF.



James Tibble (pointing at engine), an Engine System/GSE Team manager for Rocketdyne, discusses the operation of a Space Shuttle Main Engine with Bob Sieck, director of Shuttle Processing, U.S. Congressman Dave Weldon and KSC Director Roy Bridges Jr. Following a ribbon-cutting ceremony on July 6 for the Space Shuttle Main Engine Processing Facility, KSC employees and media explored the facility.

The first three main engines to be processed in the new facility are scheduled to fly on the Space Shuttle Endeavour during the STS-88 mission in December this year.

Fighting fires with KSC donations, elbow grease and volunteerism

by Joel Wells

Whether struggling alongside the army of firefighters on the frontlines or donating food and refreshments, KSC workers have aggressively responded to needs across the scorched state of Florida.

Kennedy Space Center firefighters support firefighting efforts in north Brevard County with an aircraft rescue firefighting vehicle.

Brush fires began raging through Volusia and Flagler counties in May, burning thousands of acres and threatening lives. KSC officials immediately began mobilizing their resources with plans to help their northern neighbors. Then the blazes flared up in North Brevard — closer to home.

"It looked like a tidal wave of flames headed straight for my home," recalled Mike Mulcahy, Fawn Lake resident and KSC employee. "There were about 10 ground crews and a couple of helicopters working to save our subdivision in Mims when KSC's water cannon truck showed up. The ground crews told me that my home would have been lost if KSC didn't come in and knock down the fire that threatened my house."

After working to contain a 4,000-acre KSC brush fire started by lightning on June 21, KSC's Fire Department chipped in equipment and personnel to help in the fight against other central Florida fires.

While some monitored the brush still smoldering around the space center's facilities, about 33 percent of KSC's firefighting resources were committed to battle wildfires in Brevard since June 27. A KSC fire engine and two aircraft rescue vehicles were also allocated to the effort. Base Operations Contractor EG&G Florida, Inc. provides KSC's emergency and security services.

"I'm sincerely proud of the centerwide contributions from our fire department, security office and the many KSC employees," said KSC Director Roy Bridges.

With heavy air traffic and refueling operations bustling at Titusville's Space Coast Executive Airport (SCEA), one KSC rescue truck was needed to support aircraft performing water drops over fire-afflicted areas. Five KSC sludge tankers were also staged at SCEA to mix the flame retardant needed for additional strategic air strikes. Also provided was NASA's rail car tanker loaded with 20,000 gallons of water. KSC workers had to fabricate a special elbow connection to the tanker so it could fill empty fire trucks waiting in north Brevard where no municipal water source is available.

(See Fire, Page 4)

ISS. . .

(Continued from Page 1)

the SSPF undergoing processing.

The launch of Zarya and then Unity will begin the process of piecing together more than 100 space station components.

If orchestrating the on-orbit construction of these components sounds daunting, consider the task of allocating space on the ground for the continual flow and processing of hardware, including thousands of cables, wires, pieces and parts; testing the functionality of integrated components; and hosting scores of international guests participating in this incredible effort.

For Unity and its two attached Pressurized Mating Adapters, cargo element leak checks and electrical testing are completed.

In autumn, these components scheduled for flight 2A will undergo communications testing while still in the SSPF via satellite to Houston.

Next month, the Italian-built, Multi-Purpose Logistics Module, will arrive at the SSPF, followed shortly thereafter by the arrival of the U.S. Labora-tory Module from Boeing in Huntsville, Al., in early September.

On July 10, the Boeing Company filmed a 60-second commercial promoting the International Space Station in KSC's Space Station Processing Facility. The advertisement, which features Boeing employees from KSC, Houston, and from Huntington Beach, Calif., is scheduled to air nationally this fall.

An orbiter approaches the International Space Station.

In order to assure optimum construction and performance in space, a Multi-Element Integrated Test will occur in the fall to attach hardware in the same order that it will be assembled on orbit.

Also, a multi-computer set-up that emulates Unity's functions is undergoing special tests in the SSPF now to determine how it will handle the flow of information between the orbiter, Zarya, and other major components once on orbit.

Using special cables and the actual crews that will perform the assembly, NASA and contractor staff will simulate the construction in the SSPF that will occur during flights 3A, 4A, 5A and 6A.

Elements on these flights and the three from Russia provide the initial framework, power supply, propulsion and life support systems for the station.

If all continues as scheduled, by this time next year, the first ISS crew will inhabit the orbiting research station; and by the end of 2003, it will be the size of a city block and one of the brightest objects in the night sky.

Only the Moon and Venus will be more easily visible.

Once complete, the ISS will be a platform for research and international cooperation well into the next century.

Full details of the current International Space Station Assembly Sequence, Revision D, are available in a NASA fact sheet. The fact sheet appears on the International Space Station Web site at http://station.nasa.gov.

Technology Transfer Week approaches July 27 through 31

NASA's second annual Technology Transfer Week will be held July 27 through 31.

This week of activities, sponsored by theTechnology Programs and Commercialization Office, was created to inform center employees on the benefits of technology transfer.

Exhibits will be in the lobbies of the headquarters building on Friday, July 24, and Monday, July 27; in the Space Station Processing Facility (SSPF) on Tuesday and Wednesday, July 28 and 29; and in the Operations Support Building on Wednesday and Thursday, July 29 and 30.

Technology Programs and Commercialization Office staff also will be available to answer questions.

An awards recognition breakfast will be held on Thursday, July 30, for the 1997 NASA and contractor Space Act Award recipients. Award winners will be listed in the next issue of *Spaceport News*.

A total of $83,000 in Space Act Awards was received by 114 KSC employees over the past year.

Space Act Awards and their disbursing body, the Inventions and Contributions Board (ICB), were created by the National Aeronautics and Space Act of 1958 to recognize inventions and other scientific and technical contributions that help achieve NASA's aeronautical and space goals and stimulate and encourage similar contributions in the future.

Annual awards include Software of the Year and Invention of the Year. Space Act Awards represent both automatic and ICB action awards. Automatic awards include $150 to each contributor to an article published in *Tech Briefs* magazine, $500 for a sole contributor or $250 for multiple contributors to a technology for which a patent is applied, and $500 for a sole contributor or $250 for multiple contributors for writing software that has been released to the public.

The ICB at NASA headquarters in Washington, D.C., evaluates inventions on a bi-monthly basis and grants board action awards to inventors who contribute significantly to NASA's mission.

Other award criteria include the significance of the contribution to aeronautics and space, science and technology, or humanity; the stage of development; the degree of use — both present and potential — by NASA, the government, industry and academia; and creativity.

There are three categories of Board Action Awards: nominal (under $1,000 per person), major ($1,000 to $5,000 each) and exceptional ($5,000 and up per awardee). Awards under $100,000 are approved by the NASA Administrator, whereas awards over $100,000 require approval by Congress.

Gormel. . .

(Continued from Page 1)

and Patrick Air Force Base, Gormel will direct the support of a safe, efficient and effective environment providing premier base support for the space launch community.

He is responsible for contract management and administration of the J-BOSC. Gormel will report to the chair of the J-BOSC board of directors and is administratively accountable to the KSC director.

The positions of chair and vice chair of the J-BOSC board rotate between the KSC director and the 45th Space Wing commander.

Gormel, a 30-year veteran of the Air Force's Eastern Test Range, has held various roles of leadership including chief of Range Scheduling, test supervisor of the Navy's Trident Program and director of Plans for the 45th Space Wing. He is credited with hundreds of innovations at Patrick Air Force Base and Cape Canaveral Air Station. Most recently, Gormel has served as co-chair of the J-BOSC Source Evaluation Board where he has shaped key aspects of the initiative.

Over the next few months, the JPMO Office will be staffed with NASA and Air Force civil service and active duty military personnel.

Other KSC assignments

Bridges also announced KSC executive assignments that reflect the center's new leadership role in the Expendable Launch Vehicle program, making the best possible use of the center's leadership corps and guiding the center toward KSC's Roadmap objectives.

The Payload Processing Directorate is being reorganized into two distinct organizations.

Bobby Bruckner, former Payload Processing director, is assigned as director of the Expendable Launch Vehicle (ELV) and Payload Carriers Program Office.

Larry Ellis, former director of Shuttle Processing Integration, is the new director of ELV Launch Services reporting to Bruckner.

Sterling Smith, currently acting director of the Payload Carriers Program Office, will continue to serve in that capacity reporting to Bruckner and assisting with the merger of the two programs until his retirement later this year.

Steve Francois is named director of the Space Station and Shuttle Payloads Directorate with Shannon Bartell serving as his deputy. J. Chris Fairey, former director of Quality Assurance, becomes the director of Shuttle Processing Integration, succeeding Ellis.

Ann Montgomery, former deputy director of Logistics Operations, moves to the Quality Assurance director role, succeeding Fairey.

Fire. . .

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"The leadership and courage our firefighters displayed helped in saving about 50 structures in north Brevard, including homes, businesses and the recently built Mims Post Office," reported Tim Moore, KSC Fire Chief. "KSC fire officers were appointed as task force leaders in Mims and Scottsmoor. Their tactics re-wrote the rules on fighting brush fires that involve structures."

The KSC Community Relations Council, comprised of NASA civil servants and prime contractor representatives from EG&G Florida, Delaware North, The Boeing Company, United Space Alliance and USBI, mobilized KSC employees to donate refreshment supplies to weary firefighters from across the nation. About 2,500 pounds of snack foods, sport drinks, water and Styrofoam coolers were transported to the Salvation Army for delivery to the front lines.

"As central Florida residents we can't physically fight these fires, so we have to support those who can," explained Celene Morgan, who coordinated the council's fire relief efforts.

Also, employees from NASA contractors Boeing Aerospace and United Space Alliance independently donated thousands of dollars to Brevard and Volusia county fire relief funds.

KSC and Eastern Range weather officials also assisted state fire analysts with wind, temperature and lightning data updates.

Analysts were given access to crucial information collected from a network of 41 wind towers extending from KSC to west of Interstate 95; KSC's unique Lightning Detection and Ranging system data; and infrared satellite and weather radar data.

The existing space-related weather infrastructure continues to provide insight to those studying wildfire progression.

So far, more than 10 internal KSC organizations have supported fire fighting or relief efforts in central Florida, amassing greater than 1,392 hours of service to date.

Boeing employees Barry Slack, at left, and Robert Cummings stack boxes in KSC's Operations and Checkout Building to deliver to the Salvation Army.

In this photograph recently taken at Kennedy Space Center, a large alligator attacks, kills and eats a smaller alligator in a natural display of cannibalism. Although this event is not frequently seen, it is common feeding behavior among wild alligators, according to the U.S. Fish and Wildlife Service. Alligators are carnivorous and will eat any living thing that crosses their path and is small enough for them to kill. For this reason, it is dangerous to feed wild alligators, and in Florida, it is also illegal. There are several thousand alligators on the Merritt Island National Wildlife Refuge on which KSC is located. The refuge is operated by the U.S. Fish and Wildlife Service.

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